

WHAT IS CLAIMED IS:

1. A medical device comprising:
 - a proximal handle;
 - a distal assembly for performing a medical procedure; and
 - a wire coil connecting the proximal handle to the distal assembly, actuation of the proximal handle causing the distal assembly to perform the medical procedure, the wire coil having a proximal portion comprised of a first wire and a distal portion comprised of a second wire,
wherein the second wire has a diameter less than a diameter of the first wire, so that the distal portion of the wire coil has a flexibility greater than a flexibility of the proximal portion.
2. The device of claim 1, wherein the wire coil at the distal portion has an outer diameter that is less than an outer diameter of the wire coil at the proximal portion.
3. The device of claim 1, wherein the device is configured to selectively deflect the distal portion relative to the proximal portion.
4. The device of claim 1, further comprising a jacket covering an outer surface of the proximal portion.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

5. The device of claim 1, wherein the proximal portion includes a first outer jacket and the distal portion includes a second outer jacket, wherein the second outer jacket is made of a material different than a material of the first outer jacket.
6. The device of claim 5, wherein the second outer jacket material is softer than the first outer jacket material.
7. The device of claim 1, wherein actuation of the handle causes at least one of actuation of the distal assembly and deflection of the distal portion.
8. The device of claim 7, wherein actuation of the handle from a first position to a second position actuates the distal assembly, and actuation of the handle from the second position to a third position deflects the distal portion relative to the proximal portion.
9. The device of claim 8, wherein the handle includes a stationary part and a movable part movable relative to the stationary part between the first, second, and third positions.
10. The device of claim 9, wherein the movable part is axially reciprocally movable relative to the stationary part.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

11. The device of claim 7, further comprising a deflection control member, wherein the deflection control member is configured to hold the distal portion in a deflected position.
12. The device of claim 7, wherein the handle includes a first actuation member for actuating the distal assembly and a second actuation member for deflecting the distal portion.
13. The device of claim 1, further comprising a deflection control member for controlling the deflection of the distal portion relative to the proximal portion.
14. The device of claim 1, wherein the distal assembly includes a biopsy forceps assembly.
15. A medical device comprising:
 - a proximal handle;
 - a distal assembly for performing a medical procedure; and
 - an elongated member connecting the proximal handle to the distal assembly, the elongated member having a proximal portion and a distal portion, the distal portion having a flexibility greater than a flexibility of the proximal portion so as to selectively deflect the distal portion relative to the proximal portion,

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

wherein actuation of a moving part of the proximal handle causes both deflection of the distal portion and actuation of the distal assembly to perform the medical procedure.

16. The device of claim 15, wherein the elongated member includes a wire coil.
17. The device of claim 16, wherein the wire coil at the distal portion has an outer diameter that is less than an outer diameter of the wire coil at the proximal portion.
18. The device of claim 16, wherein the distal portion is made of a first wire and the proximal portion is made of a second wire, the first wire having a diameter less than a diameter of the second wire.
19. The device of claim 15, further comprising a jacket covering an outer surface of the proximal portion of the elongated member.
20. The device of claim 15, wherein the proximal portion includes a first outer jacket and the distal portion includes a second outer jacket, wherein the second outer jacket is made of a material different than a material of the first outer jacket, so that the distal portion is more flexible than the proximal portion.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

21. The device of claim 20, wherein the second outer jacket material is softer than the first outer jacket material.
22. The device of claim 20, wherein the elongated member includes a wire coil made of a wire having substantially the same diameter.
23. The device of claim 15, wherein the movable part is configured to actuate from a first position to a second position to actuate the distal assembly and from the second position to a third position to deflect the distal portion relative to the proximal portion.
24. The device of claim 23, wherein the movable part moves relative to a stationary part of the handle between the first, second, and third positions.
25. The device of claim 24, wherein the movable part is axially reciprocally movable relative to the stationary part.
26. The device of claim 15, further comprising a deflection control member configured to hold the distal portion in a deflected position.
27. The device of claim 15, further comprising a deflection control member for controlling the deflection of the distal portion relative to the proximal portion.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

28. The device of claim 15, wherein the distal assembly includes a biopsy forceps assembly.
29. A medical device comprising:
 - a proximal handle;
 - a distal assembly for performing a medical procedure;
 - an elongated member connecting the proximal handle to the distal assembly, actuation of the proximal handle causing the distal assembly to perform the medical procedure, the elongated member having a distal portion and a proximal portion;
 - a first outer jacket covering at least a portion of the proximal portion of the elongated member; and
 - a second outer jacket covering at least a portion of the distal portion of the elongated member,

wherein the second outer jacket is made of a material different than a material of the first outer jacket, so that the distal portion of the elongated member has a flexibility greater than a flexibility of the proximal portion of the elongated member.
30. The device of claim 29, wherein the second outer jacket material is softer than the first outer jacket material.
31. The device of claim 29, wherein the elongated member includes a wire coil.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

32. The device of claim 30, wherein the distal portion is made of a first wire and the proximal portion is made of a second wire, the first wire having a diameter less than a diameter of the second wire.
33. The device of claim 29, wherein the elongated member includes a wire coil made of a wire having substantially the same diameter.
34. The device of claim 29, wherein the device is configured to selectively deflect the distal portion relative to the proximal portion.
35. The device of claim 29, wherein actuation of the handle causes at least one of actuation of the distal assembly and deflection of the distal portion.
36. The device of claim 35, wherein actuation of the handle from a first position to a second position actuates the distal assembly, and actuation of the handle from the second position to a third position deflects the distal portion relative to the proximal portion.
37. The device of claim 36, wherein the handle includes a stationary part and a movable part movable relative to the stationary part between the first, second, and third positions.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

38. The device of claim 37, wherein the movable part is axially reciprocally movable relative to the stationary part.
39. The device of claim 29, further comprising a deflection control member configured to hold the distal portion in a deflected position.
40. The device of claim 29, wherein the handle includes a first actuation member for actuating the distal assembly and a second actuation member for deflecting the distal portion.
41. The device of claim 29, further comprising a deflection control member for controlling the deflection of the distal portion relative to the proximal portion.
42. The device of claim 29, wherein the distal assembly includes a biopsy forceps assembly.
43. An elongated control shaft for use in a medical device, comprising:
 - a wire coil having a proximal portion comprised of a first wire and a distal portion comprised of a second wire, the wire coil configured to connect a handle to a distal assembly,

wherein the second wire has a diameter less than a diameter of the first wire, so that the distal portion of the wire coil has a flexibility greater than a flexibility of the proximal portion.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

44. The shaft of claim 43, wherein the wire coil at the distal portion has an outer diameter that is less than an outer diameter of the wire coil at the proximal portion.
45. The shaft of claim 43, wherein the wire coil is configured to selectively deflect the distal portion relative to the proximal portion.
46. The shaft of claim 43, further comprising a jacket covering at least a portion of an outer surface of the wire coil.
47. The shaft of claim 43, further comprising a deflection control member configured to hold the distal portion in a deflected position.
48. The shaft of claim 43, further comprising a deflection control member for controlling the deflection of the distal portion relative to the proximal portion.
49. An elongated control shaft for use in a medical device, comprising:
an elongated member for connecting a proximal handle to a distal assembly,
wherein actuation of the proximal handle causes the distal assembly to perform a medical procedure, the elongated member having a proximal portion and a distal portion;

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

a first outer jacket covering at least a portion of the proximal portion of the elongated member; and

a second outer jacket covering at least a portion of the distal portion of the elongated member,

wherein the second outer jacket is made of a material different than a material of the first outer jacket, so that the distal portion of the elongated member has a flexibility greater than a flexibility of the proximal portion of the elongated member.

50. The shaft of claim 49, wherein the second outer jacket material is softer than the first outer jacket material.
51. The shaft of claim 49, wherein the elongated member includes a wire coil.
52. The shaft of claim 51, wherein the distal portion is made of a first wire and the proximal portion is made of a second wire, the first wire having a diameter less than a diameter of the second wire.
53. The shaft of claim 51, wherein the elongated member includes a wire coil made of a wire having substantially the same diameter.
54. The shaft of claim 49, wherein the elongated member is configured to selectively deflect the distal portion relative to the proximal portion.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

55. The shaft of claim 49, further comprising a deflection control member configured to hold the distal portion in a deflected position.
56. The shaft of claim 49, further comprising a deflection control member for controlling the deflection of the distal portion relative to the proximal portion.
57. A method of making a medical device, comprising:
 - forming an elongated wire coil having a distal portion made of a first wire and a proximal portion made of a second wire, the first wire having a diameter less than a diameter of the second wire;
 - attaching a proximal handle to the proximal portion; and
 - attaching a distal assembly for performing a medical procedure to the distal portion.
58. The method of claim 57, further comprising providing a deflection controller for controlling deflection of the distal portion.
59. The method of claim 57, further comprising jacketing at least a portion of the elongated member.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

60. The method of claim 59, wherein jacketing includes jacketing the proximal portion of the elongated member and not jacketing the distal portion of the elongated member.
61. The method of claim 59, wherein jacketing includes jacketing the distal portion with a first jacket and the proximal portion with a second jacket, wherein the first jacket is made of a material softer than a material for the second jacket.
62. The method of claim 57, wherein the first wire and the second wire are formed from the same wire.
63. The method of claim 57, wherein the first wire is attached to the second wire.
64. The method of claim 63, wherein the first wire is attached to the second wire via a laser welding.
65. The method of claim 57, further comprising attaching a control member extending from the proximal handle to the distal member, wherein the control member is configured to control at least one of actuation of the distal assembly and deflection of the distal portion of the elongated member.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

66. A method of making a medical device, comprising:
 - providing an elongated member having a distal portion and a proximal portion;
 - jacketing at least a portion of the proximal portion with a first outer jacket;
 - jacketing at least a portion of the distal portion with a second outer jacket, a material for the second outer jacket being different from a material for the first outer jacket, so that the distal portion of the elongated member has a flexibility greater than a flexibility of the proximal portion of the elongated member;
 - attaching a proximal handle to the proximal portion; and
 - attaching a distal assembly for performing a medical procedure to the distal portion.
67. The method of claim 66, wherein the second outer jacket is made of a material softer than a material for the first jacket.
68. The method of claim 66, further comprising forming the elongated member with a wire coil.
69. The method of claim 66, wherein forming the elongated member includes forming the distal portion with a first wire and the proximal portion with a second wire, the first wire having a diameter less than a diameter of the second wire.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

70. The method of claim 69, wherein the first wire and the second wire are formed from the same wire.
71. The method of claim 69, wherein the first wire is attached to the second wire.
72. The method of claim 66, further comprising providing a controller for controlling deflection of the distal portion.
73. The method of claim 66, further comprising attaching a control member extending from the proximal handle to the distal member, wherein the control member is configured to control at least one of actuation of the distal assembly and deflection of the distal portion of the elongated member.
74. A method of performing a medical procedure, the method comprising:
 - providing a medical device adjacent to a tissue site, the medical device including:
 - a proximal handle;
 - a distal assembly; and
 - an elongated wire coil connecting the distal assembly to the proximal handle, the wire coil including the proximal portion made of a first wire and a distal portion made of a second wire, the second wire having a diameter less than a diameter of the first wire, so that the

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

- distal portion of the wire coil has a flexibility greater than a flexibility of the proximal portion;
- deflecting a distal portion of the wire coil to access tissue at the tissue site;
- and
- performing the medical procedure on the tissue with the distal assembly.
75. The method of claim 74, wherein the wire coil is configured to selectively deflect the distal portion relative to the proximal portion.
76. The method of claim 74, wherein the wire coil at the distal portion has an outer diameter that is less than an outer diameter of the wire coil at the proximal portion.
77. The method of claim 74, wherein the handle includes a first actuation member for actuating the distal assembly and a second actuation member for deflecting the distal portion.
78. The method of claim 74, wherein the wire coil includes a first outer jacket covering an outer surface of the proximal portion of the wire coil.
79. The method of claim 78, wherein the wire coil further includes a second outer jacket covering an outer surface of the distal portion, the second outer jacket

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

being made of a material different than a material of the first outer jacket, so that the distal portion is more flexible than the proximal portion.

80. The method of claim 79, wherein the second outer jacket material is softer than the first outer jacket material.
81. The method of claim 74, further comprising actuating the proximal handle to cause at least one of deflecting the distal portion and performing the medical procedure.
82. The method of claim 81, wherein actuating the proximal handle includes actuating a movable part of the handle from a first position to a second position to actuate the distal assembly, and actuating the movable part of the handle from the second position to a third position to deflect the distal portion relative to the proximal portion.
83. The method of claim 82, wherein the movable part of the handle moves relative to a stationary part of the handle between the first, second, and third positions.
84. The method of claim 83, wherein the movable part is axially reciprocally movable relative to the stationary part.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

85. The method of claim 74, further comprising holding the distal portion in a deflected position.
86. The method of claim 85, wherein holding the distal portion in the deflected position is performed after deflecting the distal portion and while performing the medical procedure on the tissue.
87. The method of claim 85, wherein holding the distal portion in the deflected position is performed by a deflection control member.
88. The method of claim 74, wherein the distal assembly includes a biopsy forceps assembly.
89. The method of claim 88, further comprising:
 - opening the biopsy forceps assembly;
 - receiving the tissue in the biopsy forceps assembly by deflecting the distal portion of the wire coil; and
 - severing the tissue by closing the biopsy forceps assembly.
90. The method of claim 89, wherein actuating the proximal handle includes actuating the biopsy forceps assembly to open and close.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

91. The method of claim 90, wherein actuating the proximal handle further includes deflecting the distal portion relative to the proximal portion.
92. A method of performing a medical procedure, the method comprising:
 - providing a medical device adjacent to a tissue site, the medical device including a proximal handle, a distal assembly, and an elongated member connecting the distal assembly to the proximal handle;
 - actuating the distal assembly by actuating a movable part of the handle from a first position to a second position;
 - deflecting the distal portion relative to the proximal portion to access tissue at the tissue site by actuating the movable part of the handle from the second position to a third position; and
 - performing the medical procedure on the tissue with the distal assembly.
93. The method of claim 92, wherein the distal portion of the elongated member has a flexibility greater than a flexibility of a proximal portion of the elongated member.
94. The method of claim 92, wherein the elongated member is configured to selectively deflect the distal portion relative to the proximal portion.
95. The method of claim 92, wherein the elongated member includes a wire coil.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

96. The method of claim 95, wherein the wire coil includes the proximal portion made of a first wire and a distal portion made of a second wire, the second wire having a diameter less than a diameter of the first wire, so that the distal portion of the wire coil has a flexibility greater than a flexibility of the proximal portion.
97. The method of claim 95, wherein the wire coil at the distal portion has an outer diameter that is less than an outer diameter of the wire coil at the proximal portion.
98. The method of claim 92, wherein actuating the distal assembly includes opening an end effector assembly of the distal assembly.
99. The method of claim 92, wherein the elongated member includes a first outer jacket covering an outer surface of the proximal portion.
100. The method of claim 99, wherein the elongated member further includes a second outer jacket covering an outer surface of the distal portion, the second outer jacket being made of a material different than a material of the first outer jacket, so that the distal portion is more flexible than the proximal portion.
101. The method of claim 100, wherein the second outer jacket material is softer than the first outer jacket material.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

102. The method of claim 92, wherein the movable part of the handle moves relative to a stationary part of the handle between the first, second, and third positions.
103. The method of claim 102, wherein the movable part is axially reciprocally movable relative to the stationary part.
104. The method of claim 92, further comprising holding the distal portion in a deflected position.
105. The method of claim 104, wherein holding the distal portion in the deflected position is performed after deflecting the distal portion and while performing the medical procedure on the tissue.
106. The method of claim 104, wherein holding the distal portion in the deflected position is performed by a deflection control member.
107. The method of claim 92, wherein the distal assembly includes a biopsy forceps assembly.
108. The method of claim 107, further comprising:
opening the biopsy forceps assembly;

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

receiving the tissue in the biopsy forceps assembly by deflecting the distal portion of the elongated member; and
severing the tissue by closing the biopsy forceps assembly.

109. The method of claim 108, wherein actuating the proximal handle includes actuating the biopsy forceps assembly to open and close.

110. The method of claim 92, wherein performing the medical procedure on the tissue includes closing an end effector assembly of the distal assembly.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com